

2013 Spring Fire Weather Refresher

Duluth WFO



Review of 2012 Fire Season

YEAR	2012	2011	2010	2009	2008	2007
POD	1.0	1.0	0.72*	.53	-	0.86
FAR	.00	.15	.00*	.34	-	0.60
CSI	1.0	.85	.72	.41	-	0.37
Events	4	3	4	6	0	-
Warned Zones	33	39	36	32	0	70
Lead Time (hrs)	8.75	18.2	7.5	7	-	-

Red Flag Events

- May 13th; 6 Minnesota & 4 Wisconsin Zones
- April 8th; All Minnesota Zones
- September 12th; 3 Minnesota Zones - No Watch
- October 2nd; 5 Minnesota Zones - No Watch
- August 30th; Watch Only



2012 Minnesota Wildfires



Doug Miedtke

Boxing Day Fire (near Crookston, MN)

Dec 2011 - Jan 2012

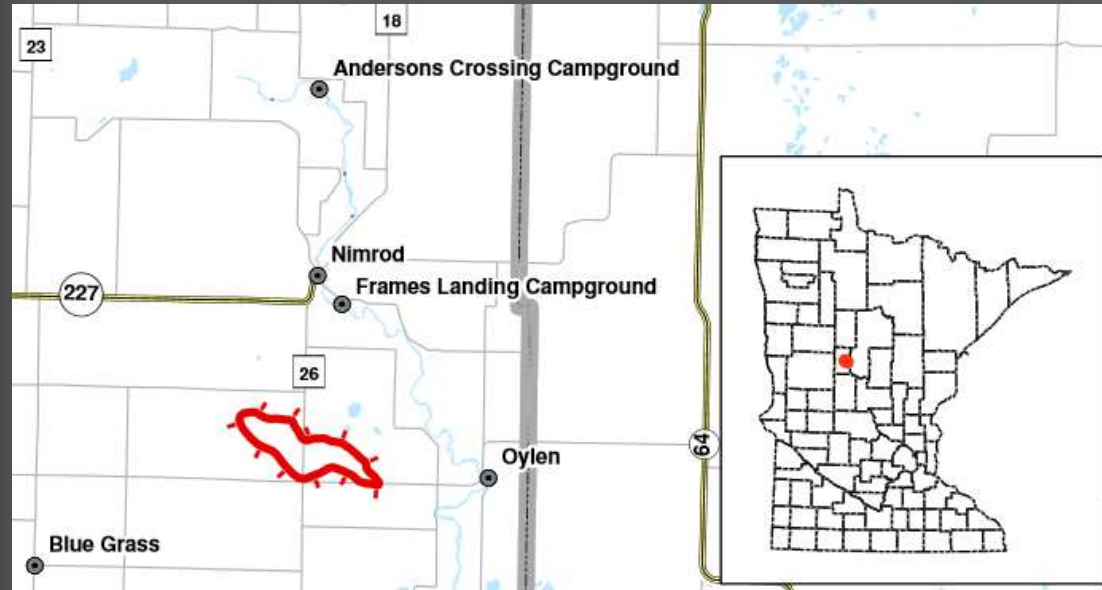


795 acres



Jeep Fire

April 8, 2012



1520 acres

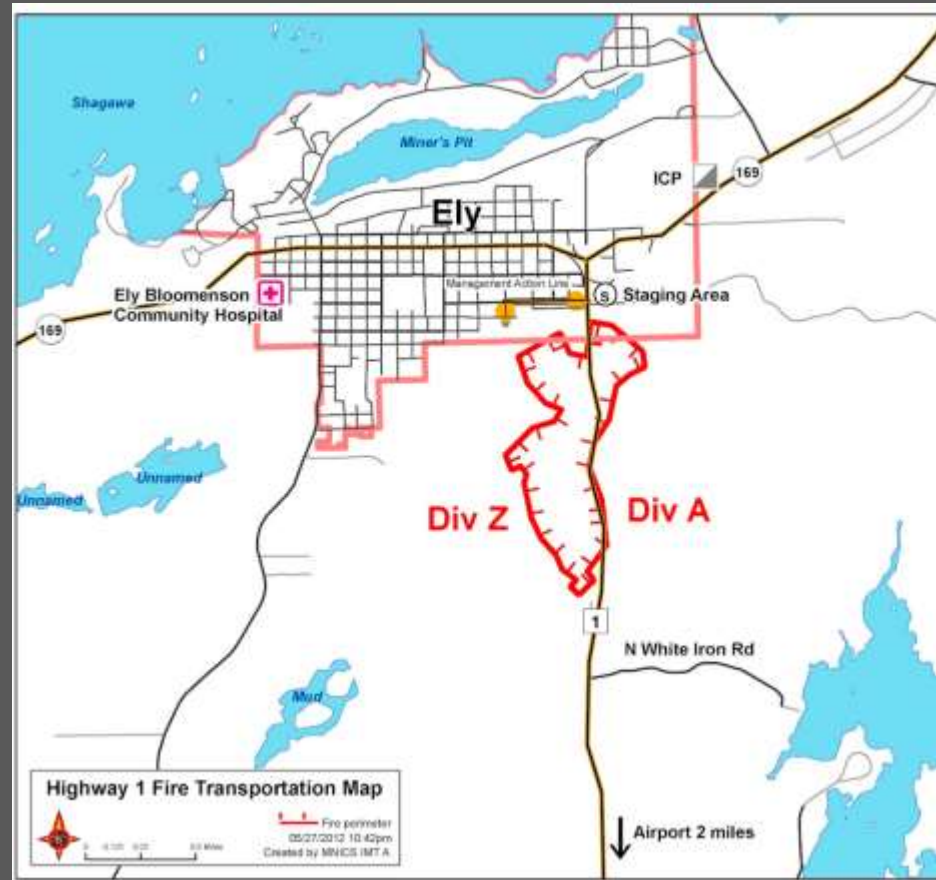
Highway 1/Ely

May 17, 2012



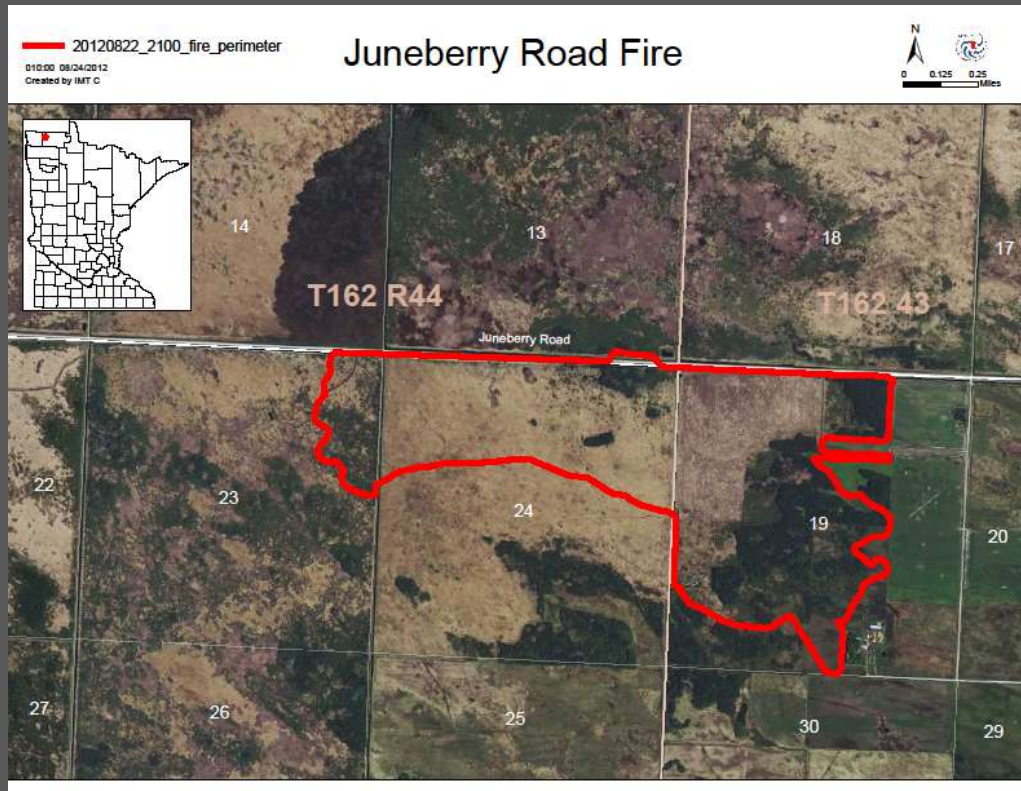
Photo by Steve Foss for MPR

175 acres



Juneberry Road

August 21, 2012

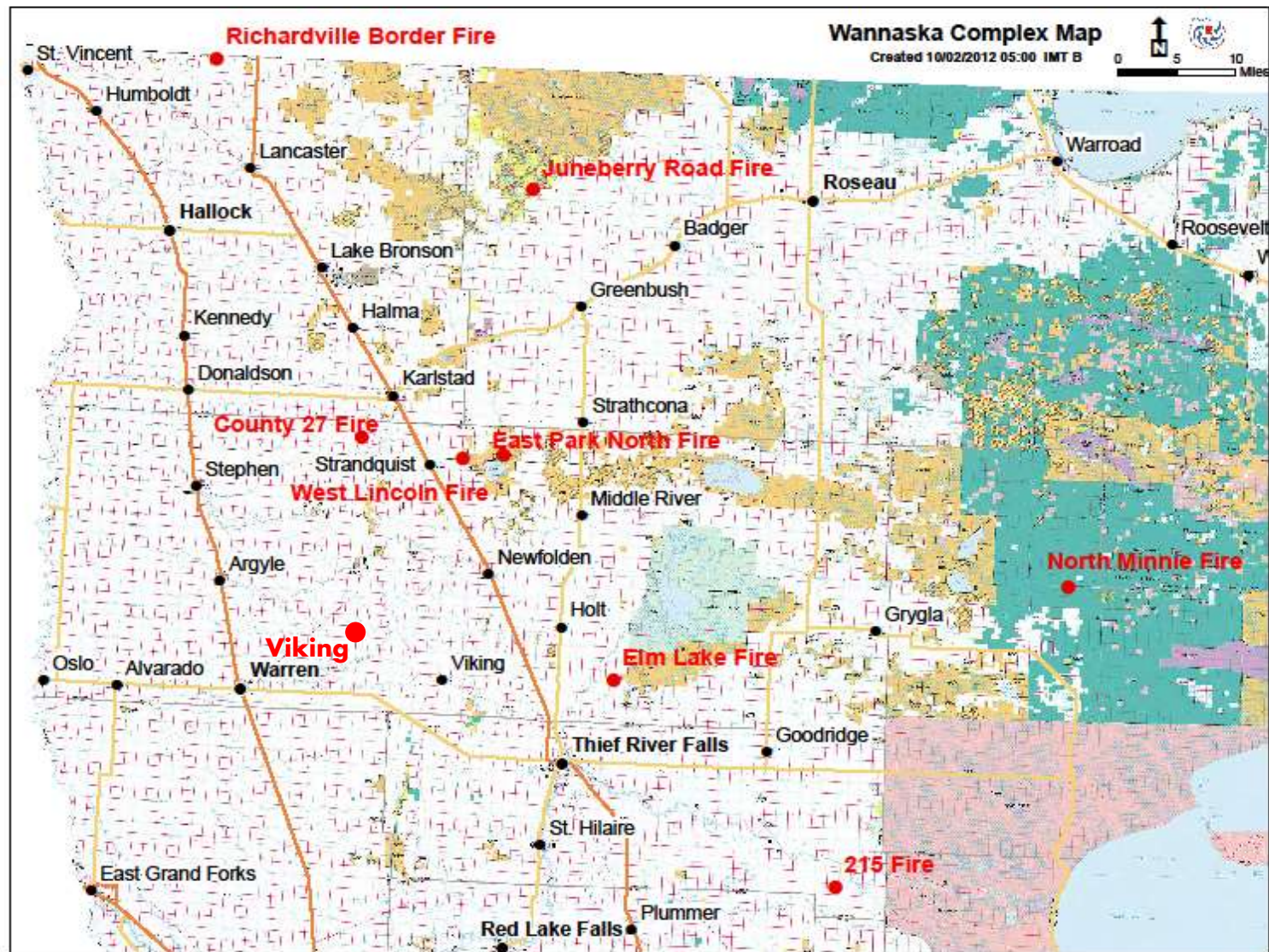


700 acres



Wannaska Complex of Fires

7068 acres



Wannaska Complex

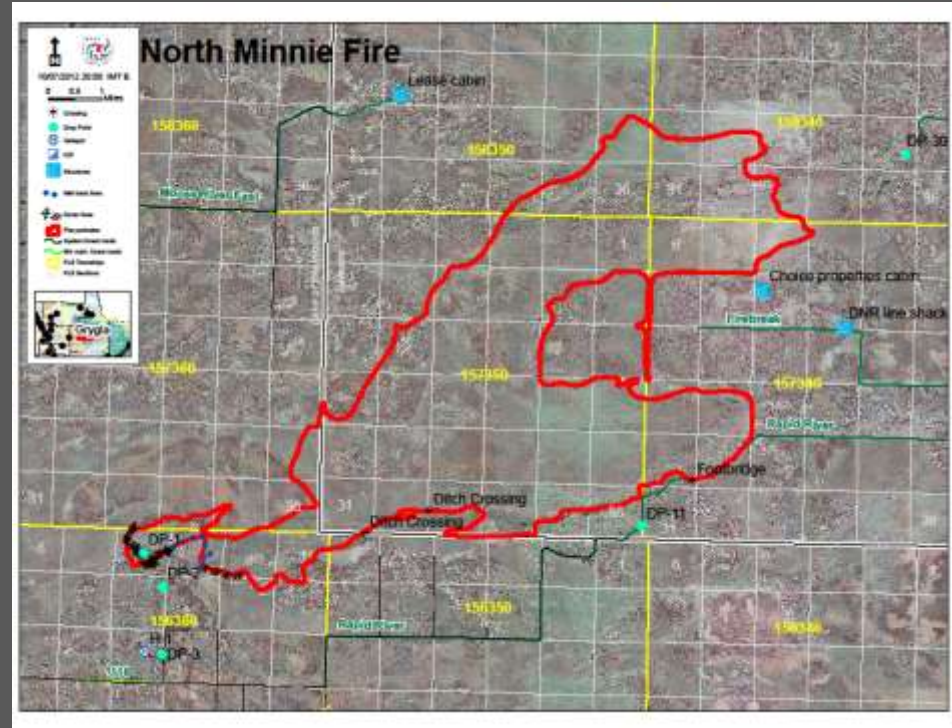
Incident Command Post

October 4th, 2012



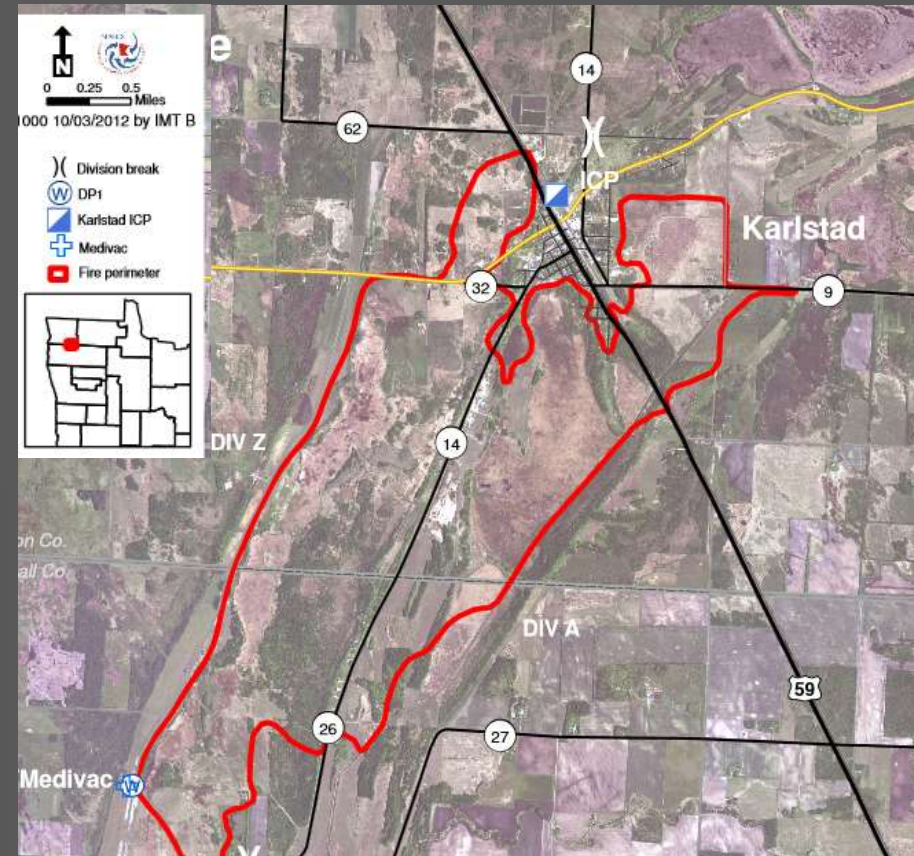
North Minnie Fire

Started September 30th, 2012
Second Run on October 2nd
25,396 acres



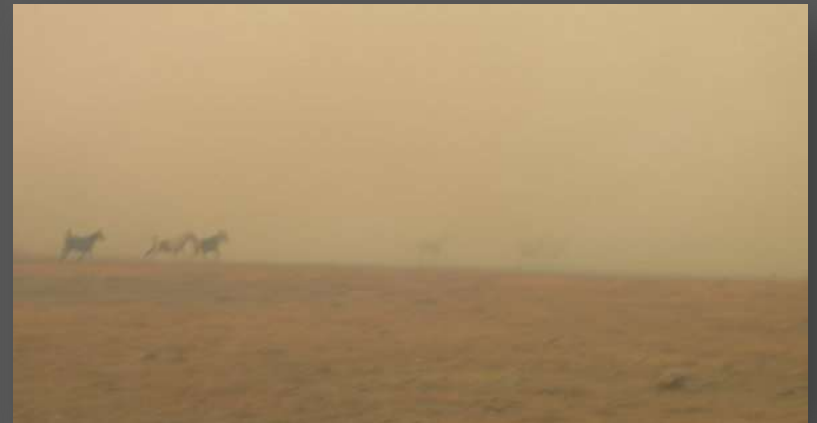
County 27/Karlstad Fire

Started September 30th, 2012
Second Run on October 2nd
4440 acres



What was Learned From the Karlstad Fire?

An operational review from Al Volker;
Fire Weather Program Leader at the
Grand Forks WFO

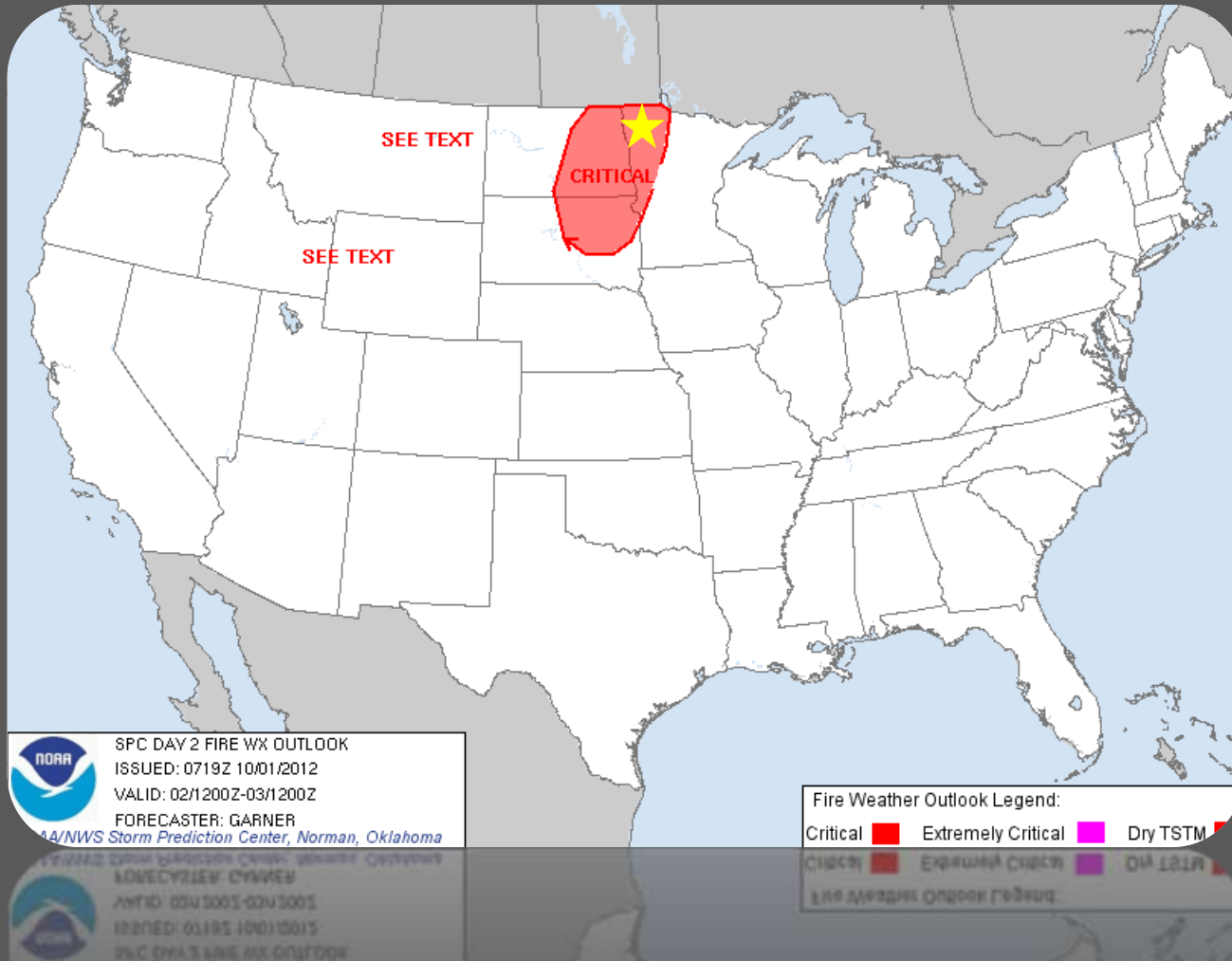


Meteorological Conditions Prior to Fire

- ▣ Extended dry period starting August 2011
- ▣ Warm dry fall with extended periods of critical fire weather conditions.
- ▣ Wildfires into early winter
- ▣ Record warm winter with well below average snowfall
- ▣ Spotty rainfall spring into early summer then warm and very dry
- ▣ Northwest Minnesota in extreme drought conditions heading into fall

Storm Prediction Center Fire Weather Outlook

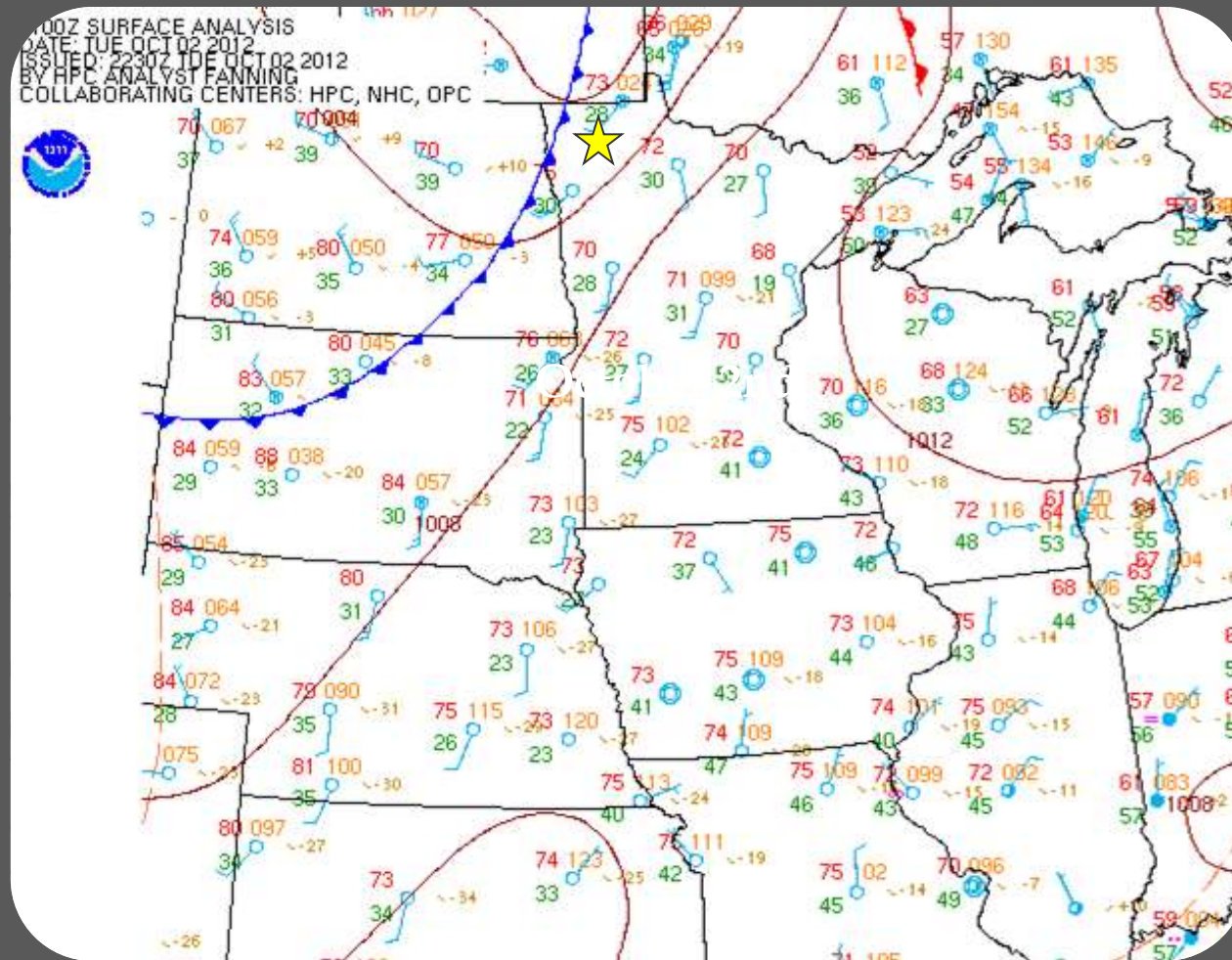
Day 2 - In Effect for October 2nd



Day 1 - In Effect for October 2nd

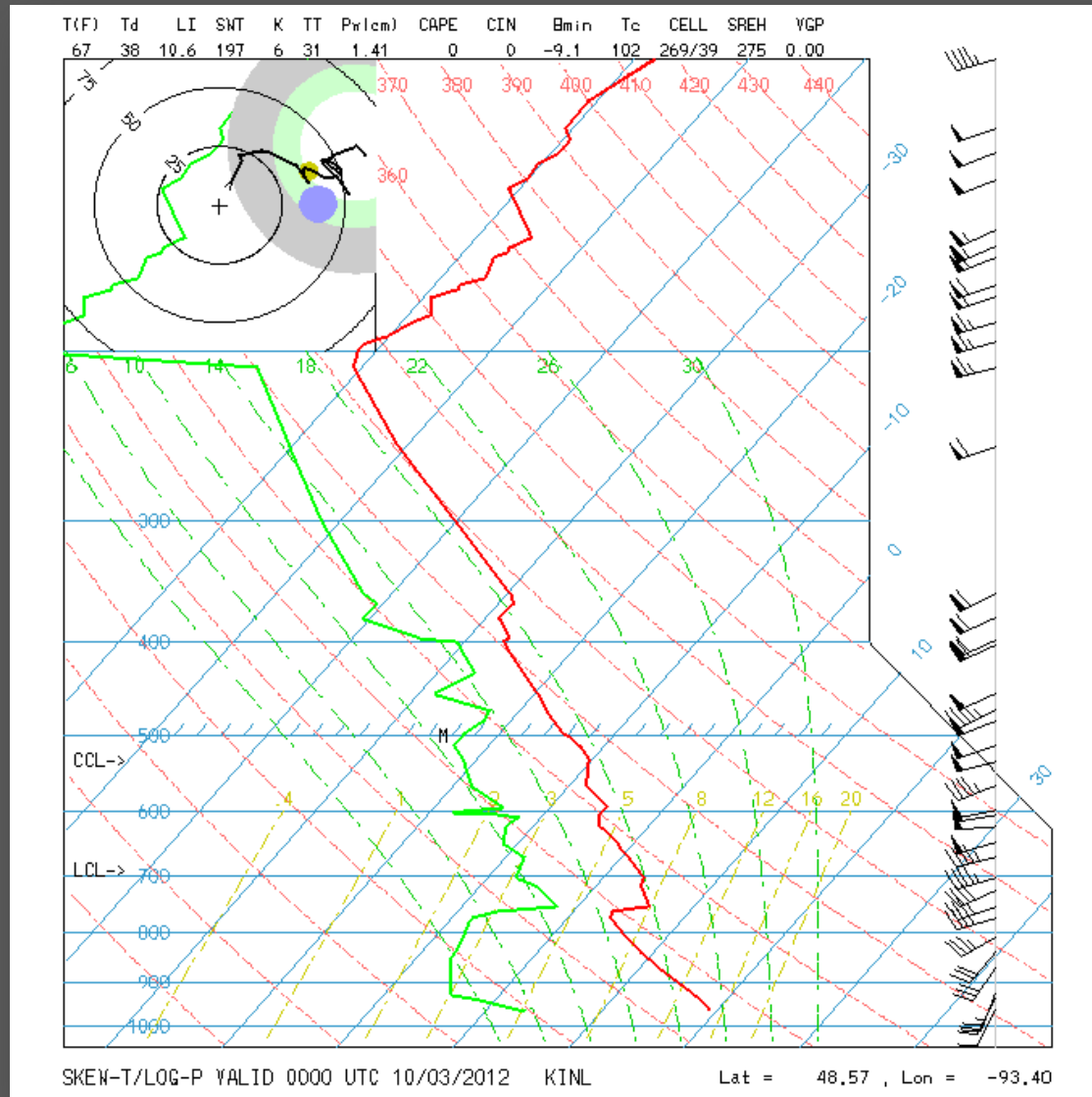


October 2nd, 2012



International Falls sounding

00Z October 3rd, 2012



Surface Observations Near Fire

October 2nd, 2012

▣ Kittson:	G40 mph	19% RH
▣ Roseau:	G44 mph	20% RH
▣ Lake of the Woods:	G30 mph	18% RH
▣ W Marshall:	G36 mph	17% RH
▣ E Marshall:	G43 mph	17% RH
▣ W Polk:	G42 mph	15% RH
▣ E Polk:	G39 mph	17% RH
▣ Pennington:	G32 mph	17% RH
▣ Red lake:	G36 mph	16% RH

NWS Grand Forks Support Services

- ▣ Third consecutive day of Red Flag Warnings issued by WFO GFK
- ▣ At Approx. 200 pm on October 2nd, the WFO received from Doug at MIFC informing them of the wildfire and that there were already reports of structural damage.
- ▣ He requested a Civil Emergency Message be issued to instruct the residents in Karlstad, MN to prepare for evacuation as fire moving rapidly towards the city.
- ▣ There was confusion amongst the forecasters if the DNR could request a CEM. This lead to a delay in issuing the product.

NWS Grand Forks Support Services

- ▣ 352 pm received SPOT request for Karlstad Wildfire. Completed/issued at 359 pm.
- ▣ Follow-up Updates Continued into the evening via cell communications with Doug Meidke (Fire Behavior Forecaster) at the fire.
- ▣ There was no IMET request for this fire. The WFO filled that position.
- ▣ Another SPOT request received at 815 pm for dissemination at around 500 am following morning.

Looking Back

What went well. What did not.

- ▣ Fast Initial Attack response to fire as crews were on standby due to the Red Flag Warning/Heightened awareness of critical conditions.
- ▣ Civil Emergency Message (CEM) request from MIFC was great use of the product. However, the confusion to its use lost critical time to alert public.
- ▣ Good communications with Doug at fire and WFO during the event.
- ▣ Timely issuance of forecast products. Accurate forecast.

Looking Back

What went well. What did not.

- ❑ Were Forecasters Caught Off Guard in this situation?
Would you know what to do if you received a call from anyone that there was a wildfire threatening a community?
- ❑ GKF did not notify the Regional Operations Center (ROC) of the structure damage until next morning.

Used to notifying CR during damaging summer convection...floods
and winter storms....but wild fires?

Wildfire are significant Events!

Few Reminders This Season



SPOT Forecasts

- ▣ Be sure the current hour forecast matches/makes sense with the observation sent in with request
 - Did much better at this last year, thanks!!

- ▣ Be sure the forecast values in the narrative portion of the SPOT matches the values in the tabular portion.
 - They can conflict due to the formatter - or if you edit one section and not the other.

Watch for conflicting or confusing values

.DISCUSSION...HIGH PRESSURE WILL BE BUILDING IN FROM THE WEST DURING THE DAY TUESDAY AS CLOUDS AND POSSIBLY A FEW LINGERING LIGHT RAIN SHOWERS MOVE TO THE EAST IN THE EARLY MORNING. MOSTLY SUNNY SKIES ARE EXPECTED THROUGH THE DAY. TEMPERATURES WILL BE AROUND 10 DEGREES COOLER THAN MONDAY...WITH MINIMUM HUMIDITIES IN THE UPPER 20 TO LOWER 30 PERCENT RANGE. NORTHWEST WINDS WILL BE QUITE GUSTY THROUGH THE DAY WITH MORNING GUSTS UP TO 15 MPH AND AFTERNOON **GUSTS UP TO OR EXCEEDING 20 MPH.** DRY CONDITIONS CONTINUE THROUGH ~~TUESDAY NIGHT WITH COOLER TEMPERATURES~~ AND RECOVERY RH VALUES IN THE 70 TO 80 PERCENT RANGE.

.TUESDAY...

SKY/WEATHER.....PARTLY CLOUDY IN THE EARLY MORNING WITH SKIES CLEARING OFF IN THE LATE MORNING. MOSTLY SUNNY THROUGH THE AFTERNOON.

MAX TEMPERATURE.....67-72.

MIN HUMIDITY.....26-30 PERCENT.

WIND (20 FT).....NORTHWEST WINDS 7 TO 11 MPH WITH GUSTS TO 15 MPH IN THE MORNING THEN INCREASING TO 11 TO 12 MPH WITH **GUSTS TO 18 MPH IN THE AFTERNOON.**

MIXING HEIGHT.....1800 FT AGL INCREASING TO 8400 FT AGL.

TRANSPORT WINDS.....NORTHWEST 25 TO 30 MPH.

SMOKE DISPERSAL.....GOOD (32900) INCREASING TO EXCELLENT (135900) LATE IN THE MORNING...THEN INCREASING TO EXCELLENT (170300) EARLY IN THE AFTERNOON DECREASING TO EXCELLENT (167700) LATE IN THE AFTERNOON.

TIME (CDT)	7 AM	9 AM	11 AM	1 PM	3 PM	5 PM
TEMP.....	52	58	65	67	70	68
RH.....	66	49	41	32	26	28
20 FT WIND DIR..NW	NW	NW	NW	NW	NW	NW
20 FT WIND SPD..7	9	10	11	13	11	
20 FT WIND GUST.8	12	15	17	18	16	

Watch for conflicting or confusing values

SPOT FORECAST FOR PERO OAK...WDNR BRULE
NATIONAL WEATHER SERVICE DULUTH MN
1112 AM CDT TUE MAY 15 2012

FORECAST IS BASED ON IGNITION TIME OF 1100 CDT ON MAY 15.
IF CONDITIONS BECOME UNREPRESENTATIVE...CONTACT THE NATIONAL WEATHER
SERVICE.

.DISCUSSION...MOSTLY SUNNY SKIES EARLY THIS AFTERNOON WILL BE
OVERTAKEN BY A MID LEVEL CUMULUS DECK IN THE MID TO LATE
AFTERNOON. NORTHWEST WINDS WILL BE GUSTY EARLY THIS AFTERNOON AND
THEN DIMINISH IN INTENSITY AFTER 2 PM. WIND DIRECTION WILL REMAIN
FROM THE NORTHWEST THROUGH THE LATE AFTERNOON. TEMPERATURES WILL
CLIMB INTO THE LOWER 70S...AND MINIMUM HUMIDITIES WILL DROP INTO
THE UPPER 20 TO LOWER 30 PERCENT RANGE.

.TODAY...

SKY/WEATHER.....MOSTLY SUNNY EARLY THIS AFTERNOON...BECOMING
PARTLY

CLOUDY IN THE MID TO LATE AFTERNOON.

MAX TEMPERATURE.....69-72.

MIN HUMIDITY.....27-32 PERCENT.

WIND (20 FT).....NORTHWEST WINDS 8 TO 11 MPH WITH GUSTS TO 17 MPH
EARLY

IN THE AFTERNOON...THEN DECREASING TO 6 TO 9 MPH

WITH

GUSTS TO 12 MPH IN THE LATE AFTERNOON.

MIXING HEIGHT.....1900 FT AGL INCREASING TO 8400 FT AGL.

SMOKE DISPERSAL.....GOOD (38300) INCREASING TO EXCELLENT (160850).

TIME (CDT)	11 AM	1 PM	3 PM	5 PM
TEMP.....	68	69	71	67
RH.....	40	33	29	30
20 FT WIND DIR..	NW	NW	NW	NW
20 FT WIND SPD..	8	11	10	8
20 FT WIND GUST.	12	18	13	11

- Keep Discussion to the point, specific to fire, and Brief.
- Avoid repeating what's in the forecast
- Communicate uncertainty – lake breeze

Example of Great Discussion!!!

.DISCUSSION...FRONTAL BOUNDARY JUST NORTH OF AREA MAY IGNITE ADDITIONAL SHOWERS AND STORMS THIS AFTERNOON. MAIN CONCERN TODAY WILL BE INCREASING WINDS...LOCALLY GUSTY...AS MIXING LAYER DEEPENS. WINDS WILL HAVE TENDENCY TO BACK INTO MORE SOUTHERLY DIRECTION BY AFTERNOON. MINIMUM RELATIVE HUMIDITY LEVELS WILL LOWER TO ABOUT 30 PERCENT BASED ON SOME INCREASE IN LOW LEVEL MOISTURE TODAY. THERE IS A CHANCE THAT LOWER VALUES...MID TO UPPER 20S MAY MATERIALIZE SO WILL NEED TO MONITOR LATE MORNING DEVELOPMENTS.

.TODAY...

SKY/WEATHER.....PARTLY CLOUDY. A SLIGHT CHANCE OF SHOWERS AND THUNDERSTORMS IN THE AFTERNOON. CHANCE OF PRECIPITATION 20 PERCENT.

MAX TEMPERATURE.....80-85.

MIN HUMIDITY.....30 PERCENT.

WIND (20 FT).....SOUTH SOUTHWEST WINDS 8 TO 13 MPH INCREASING TO
1 13 TO 15 MPH WITH GUSTS TO AROUND 25 MPH IN THE
AFTERNOON. GUSTY AND ERRATIC WINDS EXPECTED
NEAR THUNDERSTORMS IN THE AFTERNOON.

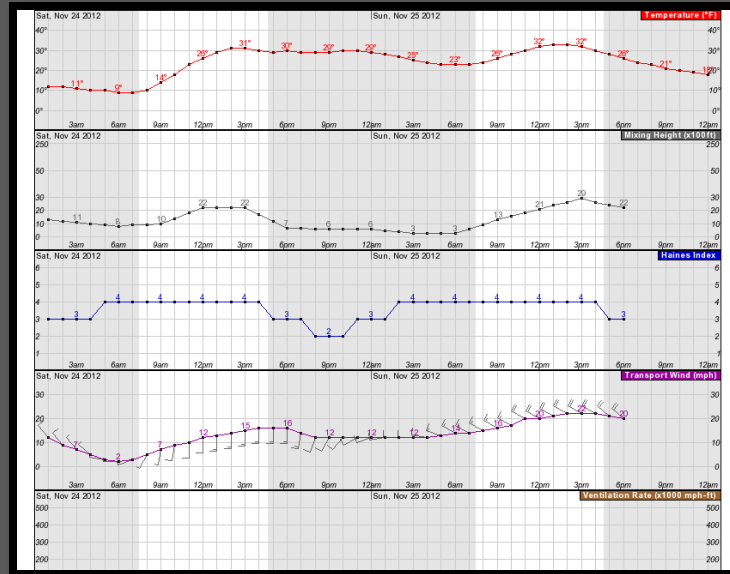
MIXING HEIGHT.....700 FT AGL INCREASING TO 2300 FT AGL LATE IN
THE MORNING...THEN INCREASING TO 3900 FT AGL
EARLY IN THE AFTERNOON DECREASING TO 3400 FT
AGL LATE IN THE AFTERNOON.

TRANSPORT WINDS.....SOUTH 20 TO 25 MPH.

SMOKE DISPERSAL.....POOR (11100) INCREASING TO EXCELLENT (73100).

TIME (CDT)	8 AM	10 AM	NOON	2 PM	4 PM	6 PM
TEMP.....	66	72	78	81	82	81
RH.....	57	50	39	33	30	34
20 FT WIND DIR..	SSW	SW	SSW	S	S	S
20 FT WIND SPD..	10	12	14	15	15	15
20 FT WIND GUST.	16	19	22	24	25	25

Be mindful that our graphical and hourly weather forecasts are used VERY frequently by fire weather users.



Keep the fire weather grids up to date as often as possible as well.

Never hurts to re-run Fire Wx Tools when new model runs come in if you have time.

**Do you Know how to find the
Fire Weather Parameters on
our website?**



Fair
12°F
-11°C

Humidity 85%
Wind Speed NW 6 mph
Barometer 30.36 in
Dewpoint 8°F (-13°C)
Visibility 10.00 mi
Wind Chill 2°F (-17°C)
Last Update on 23 Nov 11:53 pm CST

Current conditions at
Buffalo Municipal Airport (KCPE)
Lat: 45.16 Lon: -83.84 Elev: 967ft

[More Local Wx](#) | [3 Day History](#) | [Mobile Weather](#)

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OVERNIGHT	SATURDAY	SATURDAY NIGHT	SUNDAY	SUNDAY NIGHT	MONDAY	MONDAY NIGHT	TUESDAY	TUESDAY NIGHT
Partly Cloudy Low: 9 °F	Partly Sunny High: 21 °F	Wettry Mix Low: 23 °F	Mostly Sunny High: 23 °F	Mostly Cloudy Low: 14 °F	Partly Sunny High: 25 °F	Partly Cloudy Low: 15 °F	Mostly Sunny High: 21 °F	Partly Cloudy Low: 12 °F

7-DAY FORECAST

Overnight	Partly cloudy, with a low around 9. Northwest wind around 6 mph becoming calm.
Saturday	Partly sunny, with a high near 21. Light and variable wind becoming south 5 to 10 mph in the morning.
Saturday Night	A slight chance of snow and freezing rain before midnight. Mostly cloudy, with a low around 23. South wind 7 to 9 mph becoming west northwest after midnight. Chance of precipitation is 20%.
Sunday	Mostly sunny, with a high near 23. West northwest wind 6 to 11 mph.
Sunday Night	Mostly cloudy, with a low around 14. North northwest wind 7 to 9 mph.
Monday	Partly sunny, with a high near 25.
Monday Night	Partly cloudy, with a low around 15.
Tuesday	Mostly sunny, with a high near 21.
Tuesday Night	Partly cloudy, with a low around 16.
Wednesday	Mostly sunny, with a high near 32.
Wednesday Night	Partly cloudy, with a low around 21.
Thursday	Mostly sunny, with a high near 34.
Thursday Night	Mostly cloudy, with a low around 22.
Friday	Mostly sunny, with a high near 39.

NWS Twin Cities/Chanhassen, MN

Point Forecast: 3 Miles WNW Hamer MN
45.19°N 93.73°W
12:02 am CST Nov 24, 2012
1pm CST Nov 24, 2012-4pm
CST Nov 30, 2012
[Forecast Discussion](#)

[6ML](#) [5ML](#)

[Click Map for Forecast](#)

[Discussion](#)



Requested Location: Forecast Area
Lat/Lon: 45.19°N 93.73°W Elevation: 981 ft

RADAR & SATELLITE IMAGES



ADDITIONAL FORECASTS AND INFORMATION

[ZONE AREA FORECAST FOR WRIGHT COUNTY, MN](#)

[Forecast Discussion](#)
[Portable Forecast](#)
[Text Only Forecast](#)

[Hourly Weather Graph](#)
[Tabular Forecast](#)
[Quick Forecast](#)

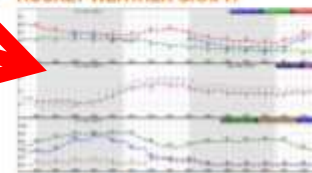
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[Graphical Forecasts](#)
[Severe Weather](#)

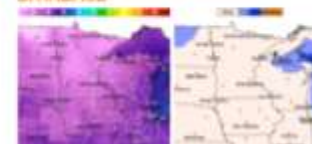
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[Regional Weather Conditions](#)
[Local Historical Climatology](#)

[Winter Weather/Storm Information](#)
[Fox Weather](#)

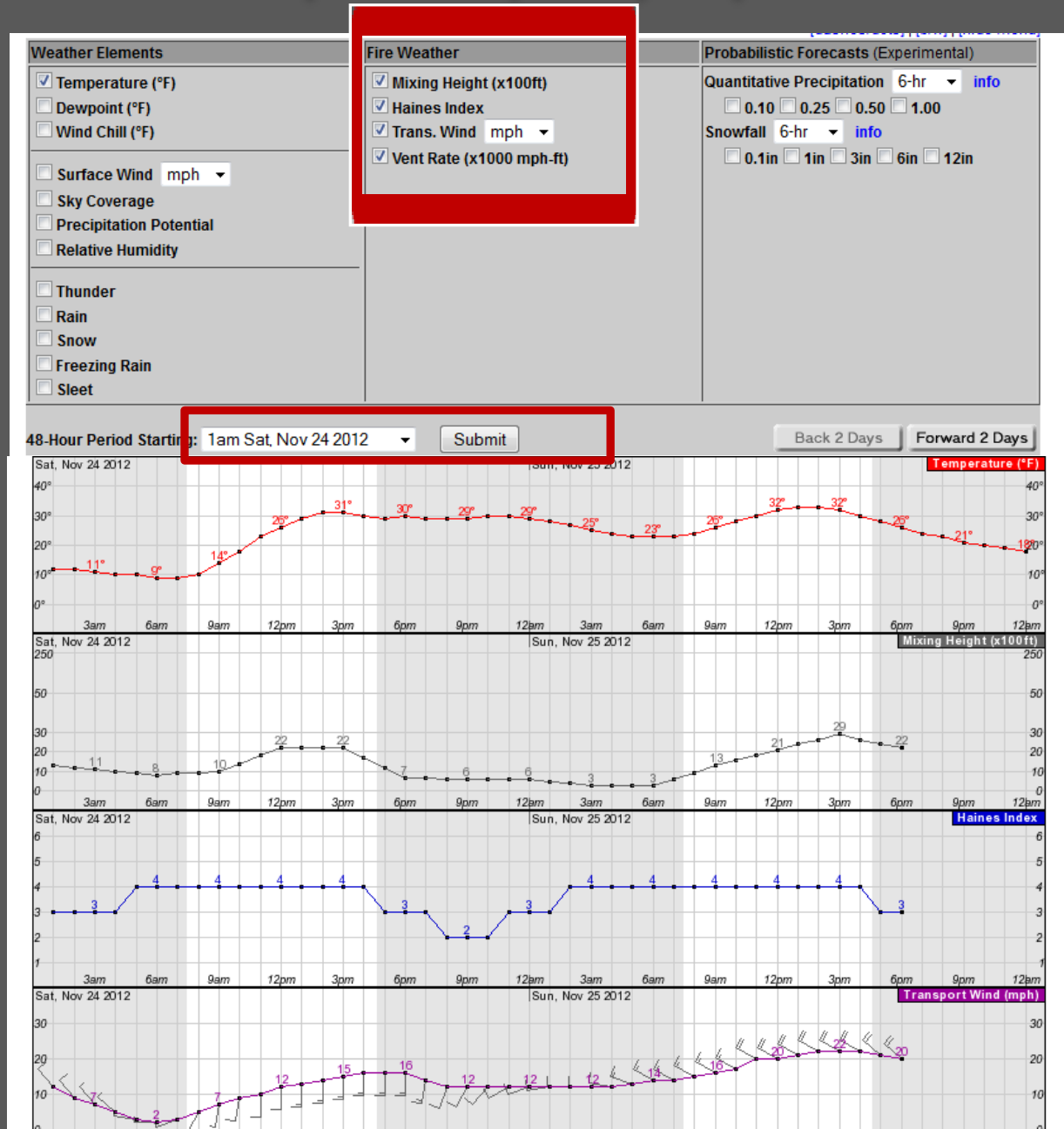
HOURLY WEATHER GRAPH



NATIONAL DIGITAL FORECAST DATABASE



Hourly Forecast – *for a specific point*





Fair
12°F
-11°C

Humidity 85%
Wind Speed NW 6 mph
Barometer 30.36 in
Dewpoint 8°F (-13°C)
Visibility 10.00 mi
Wind Chill 2°F (-17°C)
Last Update on 23 Nov 11:53 pm CST

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Lat: 45.16 Lon: -83.84 Elev: 967ft

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Tuesday	Mostly sunny, with a high near 31.
Tuesday Night	Partly cloudy, with a low around 18.
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Thursday Night	Mostly cloudy, with a low around 22.
Friday	Mostly sunny, with a high near 38.

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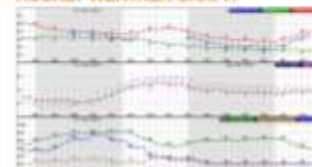


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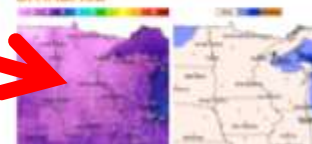
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NATIONAL DIGITAL FORECAST DATABASE

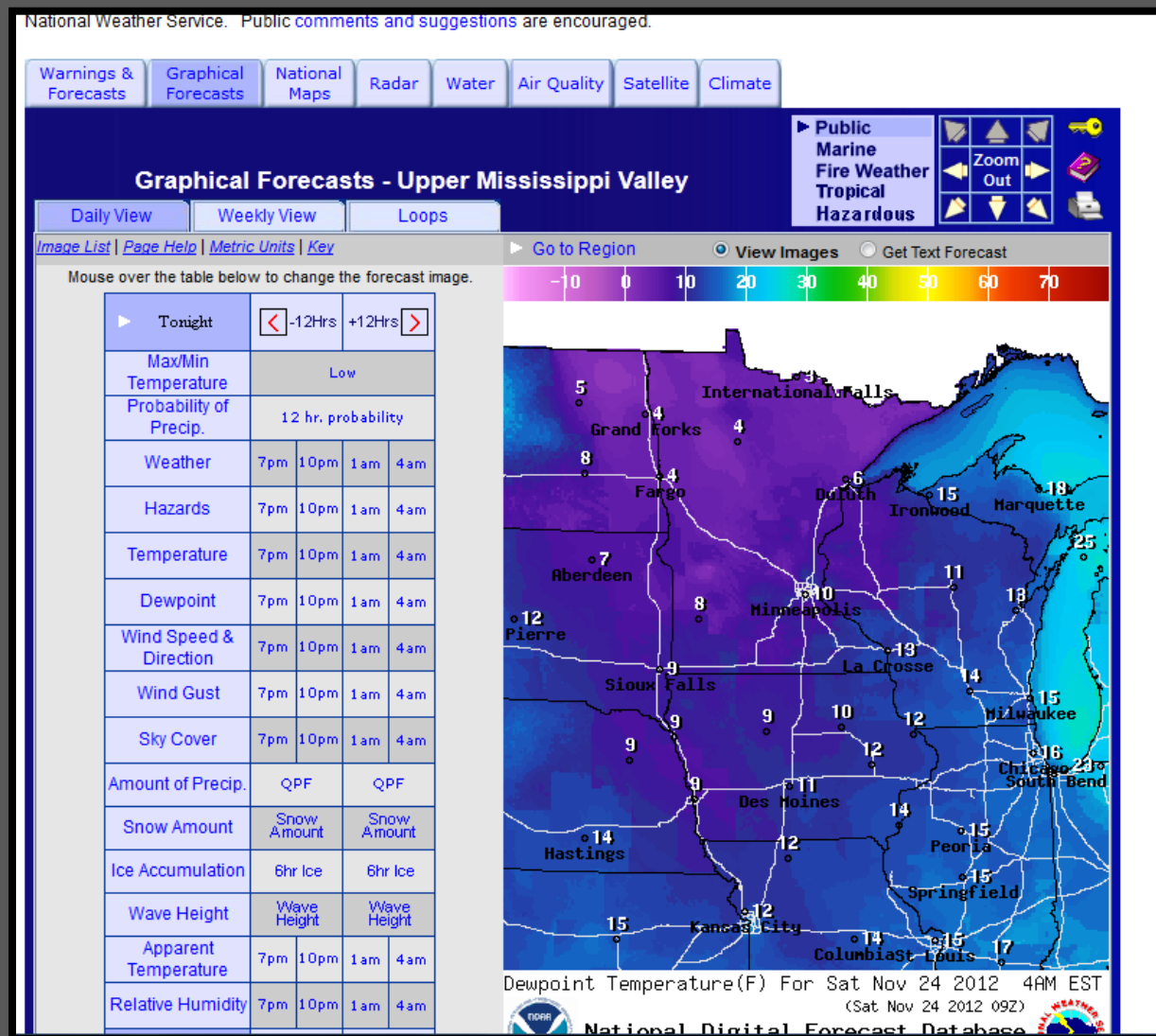


Graphical Forecast

Defaults to Regional View

However, Must be **Local View** for Fire Weather Elements

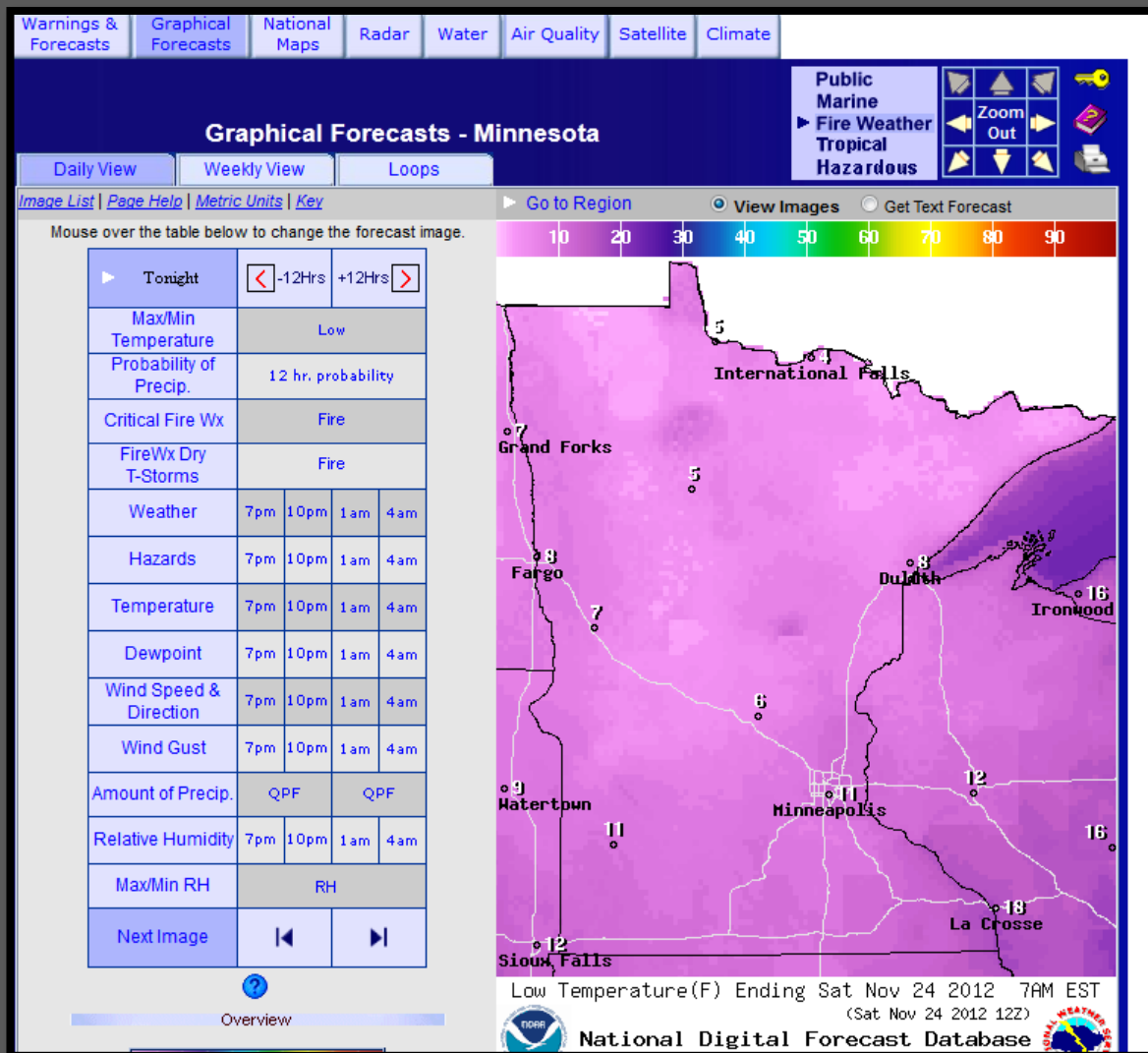
Click to “Zoom” into State View



Graphical Forecast

Now your in State
View

Click to “Zoom” into
Local View

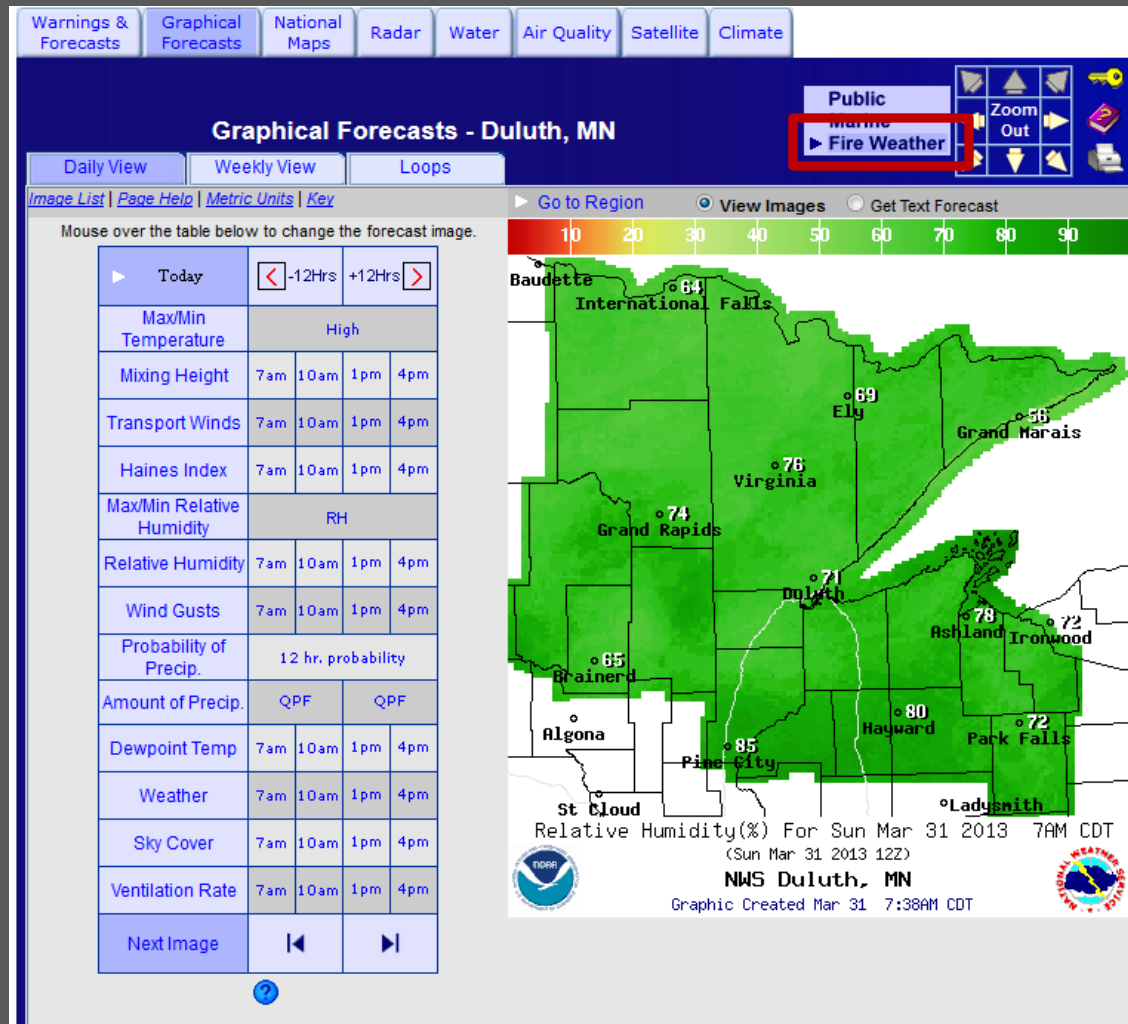


Graphical Forecast

Now your in
Local View!

Select Fire Weather at Top
Right corner

Now the Haines/Transport
Winds/Mixing Height will be
available to view



Thank You!